

# The Relationship between Post Formats and Digital Engagement: A Study of the Facebook Pages of Mexican Universities

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## Abstract

Higher education institutions have acknowledged the importance of social networks for multiple purposes, such as exploring innovative mechanisms for teaching-learning processes, colonizing new social communication channels and strengthening their institutional brand. The primary aim of this study was to identify the impact of various post formats on digital engagement in the context of the Facebook pages of some of the most important Mexican universities. It likewise sought to evaluate the use that universities made of each format. A quantitative methodology was used to analyse 31,590 content units posted by 28 universities, resulting in a total of 1,270,621 likes, 252,399 shares, and 80,620 comments on their respective Facebook pages. The study found that: a) there is a statistically significant relationship between a post's format and the digital engagement it generates; b) while links are the least conducive format for boosting digital engagement, they are also the most frequently used; and c) although images usually boost digital engagement the most, only 18% of the studied universities chose this format first.

## Keywords

Post formats, Facebook pages, digital engagement, universities

## **Relación entre los formatos de publicación y el engagement digital: estudio de las páginas de Facebook de las universidades mexicanas**

### **Resumen**

Las instituciones de educación superior están reconociendo la importancia de las redes sociales para múltiples propósitos como explorar mecanismos innovadores de enseñanza-aprendizaje, colonizar nuevos canales de comunicación social y reforzar su marca institucional. El objetivo de esta investigación fue identificar el impacto que tienen los distintos formatos de publicación, usados en las páginas de Facebook de algunas de las principales universidades mexicanas, en el nivel de engagement digital asociado a esa publicación específica. Adicionalmente se evalúa el uso de dichos formatos de publicación que hacen las mismas universidades. Para ello, se siguió una metodología cuantitativa y se analizaron 31.590 contenidos, de 28 universidades mexicanas, que a su vez generaron 1.270.621 «Me gusta», fueron compartidos 252.399 veces y registraron 80.620 comentarios. Entre los resultados de esta investigación se obtuvo que: a) existe una relación estadísticamente significativa entre el formato de una publicación y el nivel de engagement digital que genera; b) los enlaces son el formato asociado a un menor engagement digital y, sin embargo, su frecuencia de uso es la más alta; c) en general, las imágenes son el formato de publicación asociado al mayor nivel de engagement digital, pero solo el 18% de las universidades estudiadas lo utilizan como primera alternativa frente a los otros formatos de publicación.

### **Palabras clave**

formatos de publicación, páginas de Facebook, engagement digital, universidades

## Introduction

Today's university students first came into contact with the Internet at a very early age. These digital natives were thus familiar with and comfortable using technology long before starting their college education (Pensky, 2001). This reality has encouraged many universities to offer various services online, including the recent foray by some higher education institutions onto social networks. As a result of this growing interest in broadening communication through new digital channels, there is an increasing need to understand the effects of social networks and digital teaching practices on learning processes, as well as how they relate to academic success and other components of student development (Wise, Skues and Williams, 2011).

## Theoretical Framework

The term 'engagement' refers to a mental state of enjoyment of the representation of an action or object (Laurel, 1992). This concept can take on new and diverse connotations according to the context in which it is used. In the case of universities, there are four kinds of engagement. The first is academic engagement, which refers to students' commitment to their field of study and related curricular activities (Astin, 1984). The second is social engagement, which identifies the affective feelings that students attach to their university as a community and to their social activities (Nystrand and Gamoran, 1992). The third is brand engagement, which envisions schools as service suppliers and underscores the consumers' reactions (Bummerus, Liljander, Weman and Pihlstrom, 2012). Finally, the fourth is universities' digital engagement as participants in social networks; this is manifested in their followers' reaction to the characteristics and content of the material they share online (Cvijikj and Michahelles, 2013).

Digital engagement on a social network offers a means to administrate, promote and measure other kinds of engagement: academic, social, and branding. According to Junco (2001), there is a powerful relationship between the use of Facebook and real-world events, which is why engagement in some Facebook activities is directly related to engagement in real-world activities.

Several studies have evaluated social networks' impact on learning, with diverse results depending on the observation stage. Some studies have found that the time students spend browsing Facebook is negatively correlated to the time spent studying and to their academic performance (Kirschener and Karpinski, 2010; Junco, 2011; Hew, 2011; Cheung et al., 2011). However, others have focused on analysing the use of social networks in teaching courses (Badge, Sunders and Cann, 2011; Barczyk and Duncan, 2013; Bosch, 2009; Hwang and Brummans, 2011; Mazman et al., 2010) and have reported positive results, not only with regard to performance, but also in terms of the degree of student acceptance.

Moreover, with regard to social engagement, there is a positive correlation between the use of Facebook and participation in extracurricular activities and student groups (Junco, 2011). In fact, social networks should be recognized as an instrument for universities to communicate their activities to society in a mutually beneficial way (Wilks and Pearce, 2011; Guzmán and Del Moral, 2013).

Finally, brand engagement takes on special importance since universities' initial efforts to use social networks are usually undertaken by their marketing and recruitment departments (Wise, Skues, and Williams, 2011). Guzmán and del Moral (2013) have identified two macro-trends in social network communication strategies: promotion of the university's brand image and interaction between the institution and its academic community.

Of course, format is only one of the factors in a post that influences digital engagement; other factors influencing the impact of a post in the context of a social network communication strategy include content type and timing. This study will focus on the digital engagement generated by a specific social network, Facebook.

Facebook is the largest social network worldwide. In September 2013, it had a daily mean of 727 million active users ([newsroom.fb.com](http://newsroom.fb.com), n.d.). Multiple studies have highlighted the high participation rates of university students on the platform: close to 90% are active members (Hargittai, 2008; Smith and Caruso, 2010). The literature also suggests frequent daily use (Christofides, Muise and Desmarais, 2009; Pempek, Yermolayeva and Calvert, 2009; Ross et al., 2009; Valenzuela, Park and Kee, 2009; Valerio and Valenzuela, 2011) although Olson (2011) points out that participation in online social networks is greater for general matters than for academic purposes. Nevertheless, this participation has also contributed to the building up of social capital, virtual communities and engagement opportunities among university students (Olson, 2011; Ellison, Steinfield and Lampe, 2007; Valenzuela, Park and Kee, 2009).

Cvijikj and Michahelles (2013) developed a conceptual framework in which they propose that digital engagement on a social network depends on several elements: (1) the type of content published, ie the nature and content of the messages; (2) the post format, which could be understood as the message's wrapper; and (3) the time of publication, which refers to the chronological or psychological timing of the post. This study focused on the post's format. In this regard, there are four well-defined post formats on Facebook: images, plain text, videos and links (Cvijikj and Michahelles, 2013; Leung, 2012).

Leung (2012) analysed the impact of post formats on generated engagement. Although the context of that study was not academic, it makes it possible to compare the results obtained here. Leung (2012) analysed the content of the Facebook pages of 12 hotels and found that links were the most commonly used post format (37.9%), followed by images (30.5%), plain text (28.7%) and video (2.9%).

Leung (2012) also analysed the factors influencing content features on social networks and found that clients' commitment (engagement) could be measured in terms of the number of times they liked, commented on, or shared the post, and how long the interaction lasted on the Facebook brand page. This method of measuring engagement is largely similar to that followed by Cvijikj and Michahelles (2013), who defined mechanisms for measuring the engagement of Facebook followers based on the analysis of actions such as (1) liking a post, (2) commenting on it, and (3) sharing it.

These three actions are significant indicators for engagement research. First, liking a comment or post provides positive feedback to the author thereof and encourages them to comment or post more on their page. Second, by commenting on a post, users not only interact with the person who posted it, but also show interest and encourage other users to share their knowledge and opinions on the topic as well, in some cases generating conversation or debate. Third, sharing a post usually indicates that the recipient of the message agrees with the post and wants to send it on to his or her contacts, thereby increasing the post's audience.

As noted earlier, a post's success in terms of engagement depends on several factors, such as when it is posted, the format used, and the content. In light of these considerations, this study sought to respond to the following questions:

1. Do the formats used for the different posts on the studied universities' Facebook fan pages impact digital engagement?
2. How closely does the frequency with which each post format is used correlate to digital engagement?

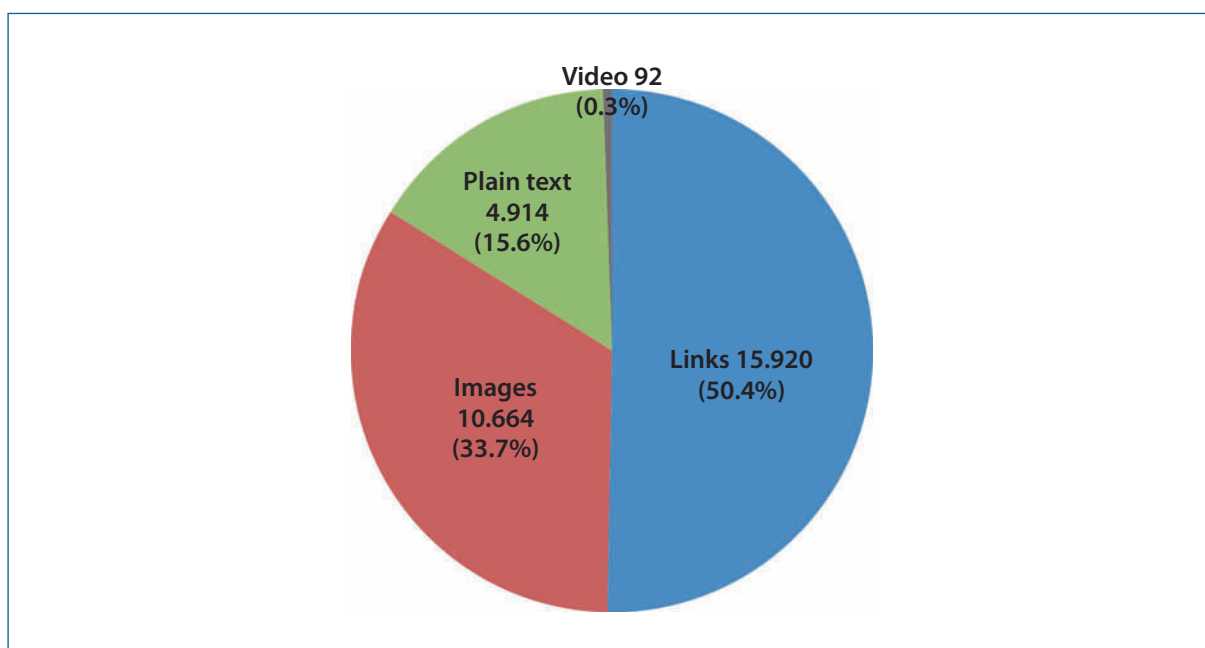
## Method

To gather a study sample, 46 Mexican universities in the QS Latin American University Ranking were analysed. This ranking is compiled based on criteria such as academic reputation, employer reputation, faculty-student ratio, citations per paper, papers per faculty member, faculty members with a PhD, and Web impact (Quacquarelli Symonds, 2013). Of the 46 Mexican universities in the ranking, only 28 met the following criteria and were thus included in the sample: a) the university had a Facebook fan page; b) the fan page was official and global (universities with multiple, local, non-global fan pages were disregarded); c) the fan page was more than one year old and thus had a consolidated follower base; and d) the fan page had not been inactive for more than six consecutive months within the observation period (30 April 2012 to 30 April 2013).

Once the sample was obtained, the information related to post type and the number of likes, comments and shares was collected. This was done using Facebook Query Language (FQL), a query language that enables the concentration of Facebook users' public data. FQL speeds up data collection and offers the possibility of objectively sorting data according to content within the defined parameters.

Figure 1 shows the breakdown by format of the resulting 31,590 content units in the data set. These content units received a total of 1,270,621 likes, 252,399 shares, and 80,620 comments. These data were used for further statistical analysis.

Figure 1. Breakdown of post formats



A quantitative methodology was used to analyse the data, in which the response variables were the number of likes, comments and shares, and the independent variable was the post format. According to Facebook's official parameters, the possible post formats were: a) image, b) plain text, c) link, and d) video. Because the volume of interactions a post receives is influenced by the number of followers of the page it is posted to, in order to isolate this effect, results were reported as likes, comments and shares per post per every 1000 fans of the Facebook page in question.

It was decided to focus the study on the possible effect of these kinds of posts on each of the three aforementioned response variables taken separately. This decision was based, first, on the fact that likes, comments and shares denote different degrees of follower engagement. Second, there were significant differences in the volume of each type of interaction: 79.23% of the interactions were likes, 15.74% shares, and 5.03% comments. Had joint measurements been considered, the results would have been biased due to the high level of likes.

Since a quantitative analysis was required for the post format, an analysis of variance (ANOVA) was used with a significance of 0.05. A Fisher's LSD test was run on the result obtained to sort and organize the media in the different categories (media that did not share letters were significantly different, with individual confidence intervals of 95%). The LSD process is considered a very efficient test for detecting true differences between media when applied after a variance analysis test (Ollero et al., 1997).

The latter results should be interpreted cautiously, since the likes were the only kind of interaction that can be assumed to have been strictly positive. In contrast, followers can use comments and shares to express their disagreement or dissatisfaction with a post. However, in our experience based on the data used for the sample, most comments reflect positive or neutral opinions of the content; the incidence of negative opinions is low. The quotient of likes and comments was also calculated, resulting in 0.62; the quotient of likes and shares was 0.55. Both figures are significant and indicate a positive and moderate relationship that enables conclusions to be drawn regarding the three kinds of interactions.

## Results

Shown below are the results for each of the proposed questions.

1. Do the formats used for the different posts on the studied universities' Facebook fan pages impact digital engagement?

Table 1 shows the results of the ANOVA test. As can be seen, the p-value for the F test was small ( $<0.05$ ); the hypothesis of equality of means can thus be rejected. In other words, post format is a statistically relevant factor for determining the number of likes a post receives.

**Table 1.** One-factor ANOVA: number of likes vs format

Source	df	SSQ	MS	F	P
Format	3	17613.8	5871.3	608.99	0.000
Error	31586	304521.1	9.6		
Total	31589	322134.9			

Likewise, as shown in Table 2, Fisher's LSD test showed that the categories of images, plain text and links are clearly distinguishable from each other. In other words, images generate more likes than plain text posts, which, in turn, generate more interactions than links. Since the video category was nominally lower than images and plain text, the result prevented us from making a statistic distinction with regard to the previous two categories; this could be due to the low frequency of this type of post within the sample (92).

Table 2. Mean likes received by format according to Fisher's LSD test

<i>Format</i>	<i>Mean</i>	<i>Grouping</i>
Images	2.067	A
Plain text	1.706	B
Video	1.448	A B
Links	0.476	C

With regard to comments, Table 3 shows the results of the ANOVA test. The p-value associated with the F test is small ( $<0.05$ ), and the hypothesis of equality of means can thus be rejected. In other words, post format is a statistically significant factor in defining the number of comments generated by a post.

Table 3. One-factor ANOVA: comments vs format

<i>Source</i>	<i>df</i>	<i>SSQ</i>	<i>MS</i>	<i>F</i>	<i>P</i>
Format	3	85.40	28.47	43.48	0.000
Error	31586	20676.62	0.65		
Total	31589	20762.02			

Furthermore, as seen in Table 4, Fisher's LSD test shows that while the means for the plain text and image categories are indistinguishable, they are both clearly higher than that for the link category. In other words, the average number of comments generated by a plain-text post or image was significantly higher than the average number of comments generated by a link. The video format was not clearly differentiated from the rest.

Table 4. Mean number of comments received by format according to Fisher's LSD test

<i>Format</i>	<i>Mean</i>	<i>Grouping</i>
Plain text	0.160	A
Images	0.152	A
Video	0.151	A B
Links	0.051	B

As for shares, as can be seen in Table 5, which shows the results of the ANOVA test, the p-value for the F test was small ( $<0.05$ ), and the hypothesis of equality of means can thus be rejected. In other words, a post's format was a statistically relevant factor in determining the number of times a content unit was shared.

Table 5. One-factor ANOVA: shares vs format

<i>Source</i>	<i>df</i>	<i>SSQ</i>	<i>MS</i>	<i>F</i>	<i>P</i>
Format	3	1145.0	381.7	64.31	0.000
Error	31586	187457	5.9		
Total	31589	188602			



Moreover, as can be seen in Table 6, Fisher's LSD test showed that, while the means for the plain text and link categories were indistinguishable from each other, both were clearly lower than the mean for images. In other words, on average, content units in video format were shared significantly more times than link and plain text posts were shared. In contrast, videos could not be clearly differentiated from the rest.

**Table 6.** Mean number of shares received by format according to Fisher's LSD test

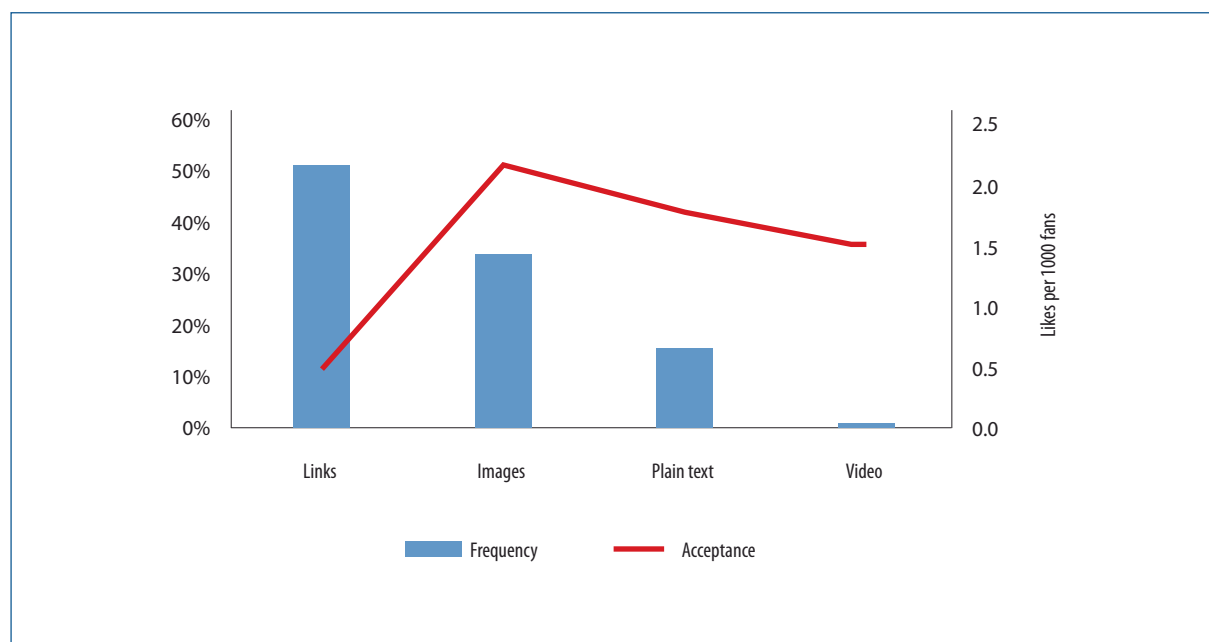
<i>Format</i>	<i>Mean</i>	<i>Grouping</i>
Images	0.488	A
Video	0.442	A B
Links	0.087	B
Plain Text	0.083	B

2. How closely does the frequency with which each type of post format is used correlate to digital engagement?

The main aim of this question was to determine the relationship between the volume of a given type of post and the digital engagement it generated. The number of likes was used as a proxy measure of total acceptance since it is the most representative form of interaction. In terms of frequency of use, links were found to be the most commonly used post format on some university fan pages, accounting for 50.4% of the total. They were followed by images (33.7%), plain text (15.6%), and, finally, videos (0.30%).

As Figure 2 clearly shows, although links were the most frequently used format, they were also the format with the lowest level of acceptance. Images, which had the highest level of acceptance, were the second most frequently used format. Videos, which were only marginally used, had an average acceptance rate compared to links.

**Figure 2.** Frequency and acceptance of post formats at Mexican universities





	<i>Links</i>	<i>Images</i>	<i>Plain text</i>	<i>Video</i>
Acceptance	0.48	2.07	1.71	1.45
Frequency	50.4%	33.7%	15.6%	0.30%

## Conclusions and Implications

The results of the analysis of Mexican universities' Facebook posts suggest that images are the most conducive content format for increasing digital engagement with posts, while links are the least conducive. These findings are similar to those reported by Leung (2012), who found that images were the best format for fostering engagement in the context of hotel marketing. Nevertheless, unlike Leung's findings, in this study, links, rather than videos, were the least efficient format in terms of engagement. This difference suggests that post format may not necessarily be the factor with the greatest impact on digital engagement in every setting.

With regard to the primary aim of evaluating the use of different formats, the evidence suggests that Facebook page administrators at Mexican higher education institutions are not using the available formats in the most efficient way. This can be seen in the fact that most of them rely heavily on the least popular formats in terms of likes received, comments and shares.

To increase digital engagement with these posts, this study's findings suggest that the frequency with which each post format is used should be brought into line with its effectiveness in terms of fostering interaction. In most cases, this would mean cutting back on the extensive use of links as the preferred format.

The way this analysis was performed made it possible to reliably identify links as the least popular post format. However, equally reliable conclusions could not be drawn with regard to the most popular post format. While a global analysis of the data suggests that images had the greatest acceptance, this statement cannot be generalized. If the universities were analysed separately, significant differences would be found between the plain text and video formats in some cases.

This study's findings do not include conclusive answers regarding the path to take to improve the digital engagement performance of Facebook posts. However, the importance of continuously monitoring each post's performance in order to identify the most and least conducive post formats, and thereby enhance overall performance on Facebook or any other digital medium used as an engagement tool, is clear.

The results of this study should be interpreted taking into consideration the study's own limitations. Some external elements may have influenced the execution of the research. First, the fact that the data were collected over a period of one year could be considered a limiting factor, as environmental factors could affect the general behaviour of the studied community over that particular period. It is possible that the studied group would have behaved differently in a different period. Second, the tool used in the study's design, i.e. Facebook pages, could also be a limiting factor. The universities' interactions with their followers could only be monitored through the wall of their Facebook pages; there was no way to monitor activities carried out with private tools such as the Inbox. Third, since this was a quantitative study, no qualitative analyses were conducted on the types of interactions or content. These factors should be taken into consideration when generalizing the results.

Future quantitative and qualitative research could focus on the influence that other factors, such as the type of content of a post or its timing, might have on digital engagement with it. It is also worth noting that Mexican

universities use their Facebook pages mainly to foster social and brand engagement and, only to a lesser extent, to promote academic engagement. Therefore, observation scenarios should be identified in which the academic use of a social network prevails.

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